AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-61 (Canceled)

62. (New) A method of classifying a cardiac response to a pacing stimulation, comprising:

delivering the pacing stimulation to a heart and sensing a cardiac signal following delivery of the pacing stimulation;

sensing for a first cardiac signal peak within a first capture detection region;

in response to detecting the first cardiac signal peak within the first capture detection region, triggering sensing for a second cardiac peak within a second capture detection region, the second capture detection region at least partially non-overlapping with the first capture detection region;

classifying the cardiac response to the pacing stimulation as a captured response in response to detecting the first cardiac signal peak within the first capture detection region and detecting the second cardiac signal peak within the second capture detection region; and

delivering pacing therapy based on classification of the cardiac response to the pacing stimulation.

63. (New) The method of claim 62, wherein the first cardiac signal peak has a polarity opposite to the polarity of the second cardiac signal peak.

64. (New) The method of claim 62, further comprising determining if the cardiac signal exceeds a threshold associated with non-capture during a first interval following delivery of the pacing stimulation.

65. (New) The method of claim 62, further comprising:

timing a first interval following delivery of the pacing stimulation; and

in response to detecting the first cardiac signal peak within the first capture detection region, timing a second interval following the first interval, wherein the first capture detection region occurs during the first interval and the second capture detection region occurs during the second interval.

66. (New) The method of claim 62, wherein one or both of the first capture detection region and the second capture detection region has one or more adaptable boundaries.

67. (New) The method of claim 62, wherein one or both of the first capture detection region and the second capture detection region has finite dimensions of time and amplitude.

68. (New) The method of claim 62, further comprising triggering sensing for one or more additional cardiac signal features in one or more additional detection regions.

69. (New) The method of claim 62, wherein delivering the pacing stimulation comprises delivering a unipolar pacing stimulation.

70. (New) The method of claim 62, wherein delivering the pacing stimulation comprises delivering a bipolar pacing stimulation.

71. (New) The method of claim 62, wherein delivering the pacing stimulation to the heart comprises delivering the pacing stimulation to a ventricle.

72. (New) The method of claim 62, wherein:

delivering the pacing stimulation comprises delivering the pacing stimulation using an electrode combination; and

sensing the cardiac signal following the pacing stimulation comprises sensing the cardiac signal using the electrode combination.

73. (New) The method of claim 62, wherein:

delivering the pacing stimulation to the heart comprises delivering the pacing stimulation using a first electrode combination; and

sensing the cardiac signal following the pacing stimulation comprises sensing the cardiac signal using a second electrode combination that is different from the first electrode combination.

74. (New) The method of claim 62, wherein sensing the cardiac signal following the pacing stimulation comprises sensing the cardiac signal using an electrode that reduces a pacing artifact signal relative to an evoked response signal.

75. (New) The method of claim 62, wherein the first capture detection region and the second capture detection are non-overlapping.

76. (New) The method of claim 62, wherein the first capture detection region and the second capture detection region are separated by a time interval.

77. (New) The method of claim 62, further comprising delivering a back up pacing stimulation if the cardiac response is classified as non-captured.

78. (New) The method of claim 62, further comprising classifying the cardiac response as an intrinsic beat responsive to detection of the first cardiac signal peak within an intrinsic detection region.

79. (New) The method of claim 78, wherein the intrinsic detection region has finite dimensions of time and amplitude.

80. (New) The method of claim 78, wherein the intrinsic detection region is non-overlapping with the first and second capture detection regions.

81. (New) The method of claim 62, further comprising classifying the cardiac response as fusion responsive to detection of the first cardiac signal peak within the first capture detection region and non-detection of the second cardiac signal peak within the second capture detection region.

82 (New) The method of claim 62, further comprising classifying the cardiac response as fusion responsive to the cardiac signal exceeding a non-capture threshold and non-detection of the first cardiac signal peak within the first capture detection region.

83. (New) The method of claim 62, further comprising classifying the cardiac response as fusion responsive to the cardiac signal exceeding a non-capture threshold and non-detection of the first cardiac signal peak within the first capture detection region and non-detection of a cardiac signal peak within an intrinsic detection region.

84. (New) The method of claim 62, further comprising defining one or more detection regions respectively associated with one or more cardiac responses other than capture.

85. (New) The method of claim 62, further comprising defining one or more detection regions respectively associated with one or more cardiac responses in addition to capture.

86. (New) The method of claim 84, wherein the detection regions have finite dimensions of time and amplitude.

87. (New) The method of claim 62, further comprising initializing one or both of the capture detection regions based on a plurality of cardiac signals sensed prior to delivering the stimulation pulse.

88. (New) The method of claim 62, further comprising adapting at least one of the capture detection regions based on a location of a cardiac signal peak.

89. (New) A cardiac rhythm management device, comprising:

pacing delivery circuitry configured to deliver a pacing stimulation to a heart;

sensing circuitry configured to a sense a cardiac signal following delivery of the pacing stimulation;

control circuitry, coupled to the sensing system, the control system configured to determine if a first cardiac signal peak of the cardiac signal falls within a first capture detection region, and, in response to the cardiac signal peak falling within the first capture detection region, to trigger sensing for a second cardiac peak of the cardiac signal within a second capture detection region, the second capture detection region at least partially non-overlapping with the first capture detection region, the control circuitry further configured to classify the cardiac response to the pacing stimulation as a captured response in response to detection of the first cardiac signal peak within the first capture detection region and detection of the second cardiac signal peak within the second capture detection region and to control pacing therapy based on classification of the cardiac response.

90. (New) The device of claim 89, wherein the second cardiac signal peak has opposite polarity to the polarity of the first cardiac signal peak.

91. (New) The device of claim 89, wherein the pulse delivery circuitry is configured to deliver the pacing stimulation to a ventricle.

92. (New) The device of claim 89, wherein the pulse delivery circuitry is configured to deliver the pacing stimulation to an atrium.

93. (New) The device of claim 89, wherein the sensing circuitry is configured to sense the cardiac signal using a ring electrode and a defibrillation electrode.

94. (New) The device of claim 89, wherein the sensing circuitry is configured to sense the cardiac signal using a right ventricular coil electrode and a can electrode.

95. (New) The device of claim 89, wherein the sensing circuitry is configured to sense the cardiac signal using a right ventricular coil electrode and a can electrode tied to an superior vena cava coil electrode.

96. (New) The device of claim 89, wherein the control circuitry is configured to determine if the cardiac signal exceeds a threshold associated with non-capture.

97. (New) The device of claim 89, wherein the first capture detection region has one or more adaptable boundaries.

98. (New) The device of claim 89, wherein the second capture detection region has one or more adaptable boundaries.

99. (New) The device of claim 89, wherein the control circuitry is further configured to trigger sensing for one or more additional cardiac signal features in one or more additional detection regions.

100. (New) The device of claim 89, further comprising a switching circuit configured to selectively couple cardiac electrodes to the pacing delivery circuitry and the sensing circuitry.

101. (New) The device of claim 89, wherein:

the pacing delivery circuitry is configured to deliver the pacing stimulation using an electrode combination; and

the sensing circuitry is configured to sense the cardiac signal following the pacing stimulation using the same electrode combination.

102. (New) The device of claim 89, wherein:

the pacing delivery circuitry is configured to deliver the pacing stimulation using a first electrode combination; and

the sensing circuitry is configured to sense the cardiac signal following the pacing stimulation using a second electrode combination that is different from the first electrode combination.

103. (New) The device of claim 89, wherein the first capture detection region and the second capture detection are non-overlapping.

104. (New) The device of claim 89, wherein the first capture detection region and the second capture detection region are separated by a time interval.

105. (New) The device of claim 89, wherein the control circuitry is configured to determine if the cardiac signal exceeds a threshold associated with non-capture and to control delivery of a back up pacing stimulation if the cardiac signal does not exceed the threshold.

106. (New) The device of claim 89, wherein the control circuitry is configured to classify the cardiac response as an intrinsic beat responsive to detection of the first cardiac signal peak within an intrinsic detection region.

107. (New) The device of claim 106, wherein the intrinsic detection region has finite dimensions of time and amplitude.

108. (New) The device of claim 106, wherein the intrinsic detection region is non-overlapping with the first and second capture detection regions.

109. (New) The device of claim 89, wherein the control circuitry is configured to classify the cardiac response as fusion responsive to detection of the first cardiac signal peak within the first capture detection region and non-detection of the second cardiac signal peak within the second capture detection region.

110. (New) The device of claim 89, wherein the control circuitry is configured to classify the cardiac response as fusion responsive to the cardiac signal exceeding a non-capture threshold and non-detection of the first cardiac signal peak within the first capture detection region.

111. (New) The device of claim 89, wherein the control circuitry is configured to classify the cardiac response as fusion responsive to the cardiac signal exceeding a non-capture threshold and non-detection of the first cardiac signal peak within the first capture detection region and non-detection of a cardiac signal peak within an intrinsic detection region.

112. (New) The device of claim 89, wherein the control circuitry is configured to use one or more detection regions respectively associated with one or more cardiac responses other than capture.

113. (New) The device of claim 89, wherein the control circuitry is configured to use one or more detection regions respectively associated with one or more cardiac responses in addition to capture.

114. (New) The device of claim 89, wherein the detection regions have finite dimensions of time and amplitude.

115. (New) The device of claim 89, wherein the control circuitry is configured to initialize one or both of the capture detection regions based on a plurality of cardiac signals sensed prior to delivery of the stimulation pulse.

116. (New) The device of claim 89, further comprising adapting one or both of the capture detection regions based on a location of a cardiac signal peak associated with the captured response.

117. (New) The device of claim 89, wherein the pulse delivery circuitry is configured to deliver the pacing stimulation via a left ventricular distal electrode and a right ventricular coil electrode.

118. (New) A medical system, comprising:

means for delivering a pacing stimulation to a heart;

means for sensing a cardiac signal after delivering the pacing stimulation;

means for sensing for a first cardiac signal peak within a first capture detection window;

means, responsive to detection of the first cardiac signal peak within the first capture detection region, for triggering sensing for a second cardiac signal peak within a second capture detection region, the second capture detection region at least partially non-overlapping with the first capture detection region;

means for classifying the cardiac response to the pacing stimulation as a captured response responsive to detection of the first cardiac signal peak in the first capture detection region and detection of the second cardiac signal peak within the second capture detection region; and

means for delivering pacing therapy based on classifying the cardiac response.

119. (New) The medical system of claim 118, wherein the second cardiac signal peak has a polarity opposite to a polarity of the first cardiac signal peak.